Chick embryonic cells as a source for generating in vitro model of muscle cell dystrophy.

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Abstract
Chick embryonic cells can be used to develop an easy and economical in vitro model for conducting studies on the disease muscle dystrophy (MD). For this, the limb myoblasts from 11th day chick embryo were isolated and cultured. To this muscle cell culture, anti-dystroglycan antibody (IIH6) was added so as to target the α-dystroglycan and disrupt the connection between the cytoskeletal proteins and the extracellular matrix (which is a characteristic feature of MD). Cells were allowed to differentiate further and the morphometrics and mRNA expression were studied. The IIH6-treated muscle cells displayed changes in morphometry, contractibility, and also atrophy was observed when compared to the control cultures. Concomitant gene expression studies showed an upregulation in TGF-β expression, while the muscle sculpture genes MYOD1, MYF5, LAMA2 and MYOG were downregulated resembling the MD in vivo. This simple and cost-effective method can be useful in studies to further understand the disease mechanism and also in conducting initial studies on effect of novel pharmacological agents.

KEYWORDS: Chick embryo; Embryonic cells; In vitro model; Muscle dystrophy; α-dystroglycan

PMID: 30302616 DOI: 10.1007/s11626-018-0297-8
[Indexed for MEDLINE]